

REMARKS

Claims 1-37 and 39-42, are all the claims pending in the application. Claims 2-6 and 8-37 have been withdrawn from consideration, and claim 38 previously has been canceled without prejudice or disclaimer. Reconsideration and allowance of all the claims are respectfully requested in view of the following remarks. At the very least, this amendment simplifies the issues for appeal by removing the objection to the disclosure.

Specification

The Examiner objected to the disclosure as including informalities. Specifically, the Examiner asserted that on page 25, line 15, the terms “ ϕ 0.5” and “C 0.7” are not clearly understood. As a path of least resistance, Applicants have deleted this sentence from the specification, thereby this objection to the disclosure is believed to have been overcome.

Claim Rejections - 35 U.S.C. § 102

The Examiner rejected claims 1, 7, and 39-42 under §102(b) as being anticipated by US Patent 6,494,169 to Tsubouchi et al. (hereinafter Tsubouchi). (hereafter referenced as ‘169). The Examiner states that the nozzles of ‘169 inherently each have a divergent cross section and thereby read on the “avoiding means” or “avoiding portions” of the claimed invention. Applicants respectfully traverse this rejection because the Examiner’s interpretation of ‘169 is mistaken.

Specifically, the Examiner asserts that, by definition, nozzles comprise divergent cross sections at the outlet side thereof. However, according to page 1547 of Webster’s Third New International Dictionary (Unabridged), published 1993, a nozzle is defined as: (1) a socket on a candlestick or sconce into which the lower end of a candle fits, (2a) a projecting vent of something : a small spout or other projecting part with an opening, and (2b) a short tube or duct that usually tapers or has a constriction, among other definitions. The tapering or diverging cross sectional aspects of a nozzle, while a possibility, are thus by no means necessary in this commonly-used definition of “nozzle”. In addition, the nozzles 41-45 of ‘169 are only shown in

the Figs. as rectangularly-shaped elements, with no specific cross-sectional structure discussed in the specification. Therefore, the Examiner cannot properly characterize the prior art nozzles as “avoiding means”—as he is attempting to do in the present Office Action—without a further showing that a diverging cross section is *necessarily present* in that nozzle. See MPEP §§ 2131.01 (III) & 2112.

Further, the nozzles 41-45 of ‘169 do not perform the function of “preventing the liquid fuel ... from being mixed with each other” as set forth in Applicants’ claims. Instead, the nozzles 41-45 appear to do the opposite; they atomize fluid into the chamber 3, wherein the atomized fluid may mix together.

In the Advisory Action as mailed on December 12, 2003, the Examiner asserts that a person having ordinary skill in the art of heat exchangers would have fundamental knowledge of thermodynamics, fluid dynamics, statics, material science and other college engineering basics. The Examiner then asserts that one versed in fluid dynamics would be familiar with spray nozzles having a divergent outlet portion as evidenced by the spray nozzle 22 of US Patent 1,639,091 to Johnson (hereinafter Johnson).

With respect to Tsubouchi, and Applicants’ comments thereon, the Examiner is mistaken. That is, Applicants do not assert that there are no divergent spray nozzles, or that they are the first to invent divergent spray nozzles. What Applicants do argue is that the Examiner’s use of Tsubouchi is wrong. Specifically, the Examiner asserts, in the final Office Action, that Tsubouchi “inherently” has divergent nozzles, and Applicants assert that it does not. To make a claim of “inherency”, the reference must necessarily include the alleged feature. In this case, just because there are divergent opening spray nozzles in the world (as evidenced by Johnson) does not mean that Tsubouchi must necessarily include them. After all, there are other types of spray nozzles as well, including ones with non-divergent openings therein. That is, the mere fact that Tsubouchi *may* include a spray nozzle having a divergent opening is insufficient to establish inherency. See MPEP §2112. Accordingly, because Tsubouchi fails to disclose any particular characteristic of the nozzle, it does not necessarily have to be of the divergent-opening type.

Moreover, with respect to claim 39, Applicants traverse this rejection for the following additional reasons, namely, Tsubouchi (when taken either with or without Johnson) still fails to disclose all the elements as set forth and arranged in Applicants' claim.

Claim 39 sets forth a fuel supply plate having a means for passing the liquid fuel by drops, and avoiding means for preventing the liquid fuel drops from being mixed with each other. For example, as shown in Figs. 6A-B, one embodiment consistent with that set forth in claim 39 comprises a fuel supply plate 47 having a means 61 for passing the liquid fuel by drops, and avoiding means 63 for preventing the liquid fuel drops from being mixed with each other.

In contrast to that set forth in claim 39, Tsubouchi fails to disclose the particular configuration of the nozzles 41-45. The Examiner relies on Johnson as showing the configuration of a spray nozzle. But Johnson's spray nozzle orifices 22 include only a divergent portion; they do not also include a cylindrical portion. Accordingly, Johnson's spray nozzle orifices are configured "so that the water will be discharged in a spray-like delivery in a diverging spray so as to distribute the water over a larger area than that of the filler pipe 4 ..."¹ That is, the water appears to be mixed with that from other orifices 22; it is not passed by drops, nor is it prevented from being mixed with that from other orifices 22. Accordingly, Johnson fails to teach or suggest a "means for passing the liquid ... by drops", and also fails to teach or suggest a "avoiding means for preventing the liquid ... drops ... from being mixed with each other", as set forth in Applicants' claim 39.

For at least any of the above reasons, this rejection is believed to be in error and should be withdrawn.

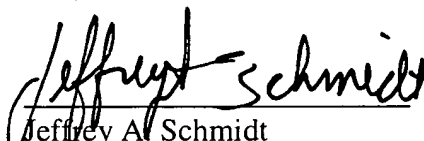
¹ Johnson at page 2, lines 4-11.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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